

What is claimed is:

1. A measurement system for measuring an object based on images obtained by plural cameras, the system comprising:

a positional control portion for controlling positions of the cameras to change photographing directions of the cameras;

a two-dimensional measurement portion for conducting two-dimensional measurement of the object based on the image of the object, the image being obtained by at least one of the cameras;

a stereoscopic measurement portion for conducting stereoscopic measurement of the object based on the images of the object, the images being obtained by the cameras; and

a switching portion for switching between the two-dimensional measurement portion and the stereoscopic measurement portion to perform an operation.

2. The measurement system according to claim 1, wherein the two-dimensional measurement portion conducts two-dimensional measurement based on the image obtained by only one of the cameras.

3. The measurement system according to claim 1, wherein the cameras allow for photographing directions differing from each other, and the cameras are controlled so as to photograph ranges differing from each other and to face directions differing from each other when the two-dimensional measurement is conducted.

4. The measurement system according to claim 1,

wherein the cameras allow for photographing directions differing from each other, and the positions of the cameras are so controlled that the cameras photograph an overlapping range when the stereoscopic measurement is conducted.

5. The measurement system according to claim 1, wherein

the positional control portion controls the positions of the cameras so that the cameras photograph ranges differing from each other and face directions differing from each other when the two-dimensional measurement portion conducts two-dimensional measurement, and controls the positions of the cameras so that the cameras photograph an overlapping range when the stereoscopic measurement portion conducts stereoscopic measurement, the overlapping range including the object, and

the switching portion switches to operate the two-dimensional measurement portion in an initial condition, and switches to operate the stereoscopic measurement portion when the two-dimensional measurement portion detects a moving object.

6. The measurement system according to claim 1, wherein the positional control portion controls the entire position and posture of the cameras.

7. The measurement system according to claim 1, wherein the positional control portion allows for control of the position and posture of each of the cameras and the cameras are controlled so as to move symmetrically.

8. The measurement system according to claim 1,

wherein the positional control portion allows for control of the position and posture of each of the cameras and the cameras are controlled so as to move synchronously.

9. The measurement system according to claim 1, further comprising an alarm output portion for raising an alarm based on an alarm signal output from the switching portion.

10. The measurement system according to claim 9, wherein the alarm output portion raises the alarm when the switching portion switches from processing in the two-dimensional measurement portion to processing in the stereoscopic measurement portion.

11. The measurement system according to claim 1, wherein the stereoscopic measurement portion includes a portion for reducing resolution of the images, and switches between generation of three-dimensional data with high resolution and generation of three-dimensional data with low resolution appropriately to conduct stereoscopic measurement.

12. The measurement system according to claim 1, wherein each of the cameras includes an image pickup device in which a color filter having any one of three primary colors is arranged for each pixel, and when image data obtained by the cameras are processed, image data of pixels corresponding to only a color filter with a particular color in the image pickup device of each of the cameras are used.